

REMARKS

Applicant thanks the Examiner for kindly allowing claims 1-38, 44-48, 50 and 52.

As a preliminary matter, during the October 29, 2002 teleconference interview with Applicant's attorney, Allison Johnson, the Examiner indicated that the Information Disclosure Statement and Form 1449 submitted on July 2, 2001 were acceptable and agreed to indicate her review of the references cited therein by initialing the Form 1449 and returning the initialed Form 1449 to Applicant at the correspondence address of record. Applicant has not received the initialed Form 1449. Applicant again submits a copy of the Form 1449 that was submitted on July 2, 2001 and requests that the Examiner return an initialed copy of the same to Applicant at the correspondence address of record.

Applicant's Specification, and claims 13, 38, 39, 41 and 51, and Figure 1 have been amended. The amendments to Applicant's Specification correct inadvertent typographical errors.

Claims 13, 38, 39, 41 and 51 have been amended to provide further clarity and not for reasons related to patentability.

Figure 1 has been amended to include reference character 10 and a corresponding lead line. A substitute drawing sheet reflecting this amendment is submitted herewith.

Applicant's invention is directed to thermal barrier assemblies. Thermal barrier assemblies are often employed in window and door casings, which are used in various structures including buildings. (See Applicant's Specification, page 1, lines 5-12). Thermal barrier assemblies function to interrupt the transfer of thermal energy from one side of a casing to another (Id. at lines 10-12).

Claim 49 stands rejected under 35 U.S.C. § 102(b) over Liu et al. (U.S. Patent 6,403,465) ("Liu").

Liu discloses a semiconductor substrate (100) upon which a trench (150) has been formed in an inter-level dielectric (ILD) layer (110). Liu further discloses forming a copper adhesion layer (120) on the substrate (100), including the inside walls of the trench (150), and then depositing a barrier layer (130) on the copper layer. The semiconductor substrate of Liu is used in integrated circuits.

Claim 49 is directed to a thermal barrier assembly that includes a first structural component, a second structural component, a channel disposed between the first structural component and the second structural component, a layer of metal bonded to a surface of the channel, the metal having been deposited on the channel surface from a plasma, and an adhesive composition disposed in the channel, the first structural component being bonded to the second structural component through the adhesive composition. Liu does not teach a thermal barrier assembly. Rather, Liu is directed to integrated circuits. Integrated circuits are nothing like thermal barrier assemblies. Liu also does not teach two separate structural components bonded together through an adhesive composition. Instead Liu discloses a single structure in, which a trench is formed. The copper layer of Liu, which the January 14, 2003 Office Action asserts is an adhesive composition, does not bond a first structural component to a second structural component. Rather, the copper layer of Liu sits on the surface of a trench. Liu thus fails to teach the thermal barrier assembly of claim 49. Applicant submits, therefore, that the rejection of claim 49 under 35 U.S.C. § 102(b) over Liu cannot stand and respectfully requests that it be withdrawn.

Claim 51 stands rejected under 35 U.S.C. § 102(b) over Liu.

The disclosure of Liu set forth above is incorporated herein.

Claim 51 is directed to a casing that includes a thermal barrier including a thermal barrier assembly including a channel and a modified surface that includes a layer of metal bonded to a surface of the channel, the metal layer having been deposited onto the channel surface from a plasma and an adhesive composition bonded to the modified surface of the channel. Casings are used in structures such as office and industrial buildings. A thermal barrier interrupts the transfer of thermal energy. Liu does not teach a casing or a thermal barrier assembly. Liu is directed to integrated circuits and semiconductor substrates. Integrated circuits and semiconductor substrates are not casings or thermal barrier assemblies and are nothing like casings or thermal barrier assemblies. Liu thus fails to teach required elements of claim 51. Applicant submits, therefore, that the rejection of claim 51 under 35 U.S.C. § 102(b) over Liu is unwarranted and respectfully requests that it be withdrawn.

Claims 39-43 stand rejected under 35 U.S.C. § 103 over Liu.

The disclosure of Liu set forth above is incorporated herein.

Claim 39 is directed to a thermal barrier assembly including a channel that includes a modified surface including a layer of metal bonded to a surface of the channel, the metal having been deposited onto the channel surface from a plasma, and an adhesive composition bonded to the modified surface of the channel, the adhesive composition exhibiting no greater than 5% shrinkage when bonded to the surface and subjected to the % Shrinkage Test Method. Liu does not teach or suggest a thermal barrier assembly.

Rather Liu discloses integrated circuits and semiconductor substrates. Integrated circuits and semiconductor substrates are not thermal barrier assemblies. Thermal barrier assemblies interrupt the transfer of thermal energy. There is nothing in Liu that teaches or suggests that his integrated circuits interrupt the transfer of thermal energy. Liu's disclosure of a barrier layer does not establish anything to the contrary. The barrier layer referred to in Liu is intended to prevent the diffusion of copper ^{intended use} not the transfer of heat ^{not claimed} or thermal energy. Accordingly, Liu fails to teach or suggest the thermal barrier assembly of claim 39. Applicant submits, therefore, that the rejection of claim 39 under 35 U.S.C. § 103 (a) over Liu is unwarranted and should be withdrawn.

Claims 40-43 are distinguishable under 35 U.S.C. § 103 (a) over Liu for at least the same reasons set forth above in distinguishing claim 39.

The claims now pending in the application are in condition for allowance. Reconsideration and timely allowance of claims 39-43, 49 and 51 is respectfully requested. The Examiner is invited to telephone the undersigned if a teleconference interview would facilitate prosecution of this application on the merits.

Please charge any additional fees owing or credit any overpayment made to
Deposit Account No. 06-2241.

Respectfully submitted,

04/11/2003

Date

Wendy N. Peterson

Wendy N. Peterson

Reg. No. 52,116

Wendy N. Peterson
H.B. Fuller Company
Patent Department
1200 Willow Lake Boulevard
P.O. Box 64683
St. Paul, MN 55164-0683
Phone No. 651-236-5304
Fax No. 651-236-5126

PENDING CLAIMS AS OF 04/11/03

Sub
C1

1. (Previously amended) A method of modifying a thermal barrier assembly

comprising a channel, said method comprising:

exposing a surface of said channel to a plasma comprising metal moieties;

and

depositing said metal moieties on the surface of said channel,

wherein said thermal barrier assembly comprises at least a portion of a casing.

2. (Original) The method of claim 1, wherein said channel comprises a surface treatment prior to said depositing step, said method further comprising removing at least a portion of said surface treatment from said channel.

3. (Original) The method of claim 1, wherein said metal is selected from the group consisting of aluminum, nickel, chromium, iron, graphite, molybdenum, copper, cobalt, tungsten, indium, manganese, zirconium, zinc, cesium, yttrium, antimony, and oxides, carbides, nitrides and silicides thereof, and alloys and mixtures thereof.

4. (Previously amended) The method of claim 1, wherein said thermal barrier assembly comprises at least a portion of a casing selected from the group consisting of a window casing, door casing and curtain wall casing.

5. (Original) The method of claim 1, wherein said depositing comprises forming a metal coating on the surface of said channel.

6. (Original) The method of claim 1, wherein said coating has a thickness of no greater than about 2 mm.

7. (Original) The method of claim 1, wherein said channel is defined by a substrate comprising metal.

B3

8. (Original) The method of claim 7, wherein said metal is aluminum.

9. (Original) The method of claim 1, wherein said channel is defined by a substrate comprising a polymer.

10. (Original) The method of claim 1, wherein said channel comprises a first side wall, a second side wall positioned parallel to said first side wall and spaced no greater than about 2.5 cm from said first side wall.

11. (Original) The method of claim 1, wherein said thermal barrier assembly comprises a window casing.

12. (Original) The method of claim 1, wherein said thermal barrier assembly comprises a door casing.

13. (Currently amended) A thermal barrier assembly comprising:

a channel comprising a modified surface; and

a layer of metal bonded to a surface of said channel,

said metal having been deposited on said channel surface from a plasma,

wherein said thermal barrier assembly comprises at least a portion of a casing.

14. (Original) The thermal barrier assembly of claim 13, further comprising an adhesive composition bonded to the modified surface of said channel.

15. (Original) The thermal barrier assembly of claim 14, wherein said adhesive composition comprises polyurethane.

16. (Original) The thermal barrier assembly of claim 14, wherein said adhesive composition exhibits no greater than 5 % shrinkage when bonded to said surface and subjected to the % Shrinkage Test Method.

17. (Original) The thermal barrier assembly of claim 14, wherein said adhesive composition exhibits no greater than 1% shrinkage when bonded to said surface and subjected to the % Shrinkage Test Method.

18. (Original) The thermal barrier assembly of claim 14, wherein said adhesive composition exhibits a shear strength of at least 2500 psi shear strength at room temperature after being subjected to the Thermal Cycling Method.

19. (Original) The thermal barrier assembly of claim 14, wherein said adhesive composition exhibits a shear strength of at least 3000 psi at room temperature after being subjected to the Thermal Cycling Method.

20. (Original) The thermal barrier assembly of claim 14, wherein said adhesive composition exhibits a shear strength of at least 7500 psi at room temperature after being subjected to the Thermal Cycling Method.

21. (Original) The thermal barrier assembly of claim 13, wherein said metal is selected from the group consisting of aluminum, nickel, chromium, iron, graphite, molybdenum, copper, cobalt, tungsten, indium, manganese, zirconium, zinc, cesium, yttrium, antimony, and oxides, carbides, nitrides and silicides thereof, and alloys and mixtures thereof.

22. (Original) The thermal barrier assembly of claim 13, wherein said channel is defined by a substrate comprising metal.

23. (Original) The thermal barrier assembly of claim 22, wherein said metal comprises aluminum.

24. (Original) The thermal barrier assembly of claim 13, wherein said channel is defined by a substrate comprising a polymer.

25. (Previously amended) A window casing comprising the thermal barrier assembly of claim 38.

26. (Previously amended) A door casing comprising the thermal barrier assembly of claim 38.

27. (Previously amended) A process for making a thermal barrier assembly, said process comprising:

exposing a surface of a channel of a thermal barrier assembly to a plasma comprising metal moieties; and

depositing said metal moieties on the surface of said channel,
wherein said thermal barrier assembly comprises at least a portion of a casing.

28. (Original) The process of claim 27, further comprising contacting the metal surface of said channel with an adhesive composition.

29. (Original) The process of claim 27, wherein prior to said depositing, said channel comprises a surface treatment disposed on the channel surface, said process further comprising removing at least a portion of said surface treatment prior to depositing said metal moieties.

30. (Original) The process of claim 27, wherein said metal is selected from the group consisting of aluminum, nickel, chromium, iron, graphite, molybdenum, copper, cobalt, tungsten, indium, manganese, zirconium, zinc, cesium, yttrium, antimony, and oxides, carbides, nitrides and silicides thereof, and alloys and mixtures thereof.

31. (Original) The process of claim 28, wherein said adhesive composition comprises polyurethane.

32. (Original) The process of claim 27, wherein said surface treatment is selected from the group consisting of polyester, melamine, mill finish, conversion coating, primer, paint, acrylic, polyester, enamel, polyurethane, fluoropolymer, anodic finishes and combinations thereof.

33. (Original) The process of claim 27, wherein said channel is defined by a substrate comprising metal.

34. (Original) The process of claim 33, wherein said metal comprises aluminum.

35. (Original) The process of claim 27, wherein said channel is defined by a substrate comprising a polymer.

36. (Original) A process for making a window casing comprising the process of claim 27.

37. (Original) A process for making a door casing comprising the process of claim 27.

38. (Currently amended) A thermal barrier assembly comprising:

a channel comprising a modified surface comprising a layer of metal bonded to a surface of said channel, said metal having been deposited onto said channel surface from a plasma; and

an adhesive composition bonded to the modified surface of said channel, said adhesive composition comprising polyurethane.

39. (Currently amended) A thermal barrier assembly comprising:

a channel comprising a modified surface comprising a layer of metal bonded to a surface of said channel, said metal having been deposited onto said channel surface from a plasma; and

an adhesive composition bonded to the modified surface of said channel, said adhesive composition exhibiting no greater than 5 % shrinkage when bonded to said surface and subjected to the % Shrinkage Test Method.

40. (Previously added) The thermal barrier assembly of claim 39, wherein said adhesive composition exhibits no greater than 1 % shrinkage when bonded to said surface and subjected to the % Shrinkage Test Method.

41. (Currently amended) A thermal barrier assembly comprising:

a channel comprising a modified surface;

a layer of metal bonded to a surface of said channel, said metal layer having been deposited onto said channel surface from a plasma; and

an adhesive composition bonded to the modified surface of said channel, said adhesive composition exhibiting a shear strength of at least 2500 psi shear strength at room temperature after being subjected to the Thermal Cycling Method.

42. (Previously added) The thermal barrier assembly of claim 41, wherein said adhesive composition exhibits a shear strength of at least 3000 psi at room temperature after being subjected to the Thermal Cycling Method.

43. (Previously added) The thermal barrier assembly of claim 41, wherein said adhesive composition exhibits a shear strength of at least 7500 psi at room temperature after being subjected to the Thermal Cycling Method.

44. (Previously re-presented) A process for making a thermal barrier assembly, said process comprising:

providing a thermal barrier assembly comprising a channel, and a surface treatment disposed on a surface of said channel;
exposing said treated surface of said channel to a plasma comprising metal moieties;
removing at least a portion of said surface treatment; and
depositing said metal moieties on the surface of said channel.

45. (Previously added) The process of claim 44, wherein said surface treatment is selected from the group consisting of polyester, melamine, mill finish, conversion coating, primer, paint, acrylic, polyester, enamel, polyurethane, fluoropolymer, anodic finishes and combinations thereof.

46. (Previously re-presented) A process for making a thermal barrier assembly, said process comprising:

exposing a surface of a channel of a thermal barrier assembly to a plasma comprising metal moieties;
depositing said metal moieties on the surface of said channel; and
contacting the metal surface of said channel with an adhesive composition comprising polyurethane.

47. (Previously added) A casing comprising the thermal barrier assembly of claim 13.

48. (Previously added) The method of claim 1, wherein said thermal barrier assembly comprises a unitary structure.

49. (Previously added) A thermal barrier assembly comprising:

a first structural component;
a second structural component;
a channel disposed between said first structural component and said second structural component.

a layer of metal bonded to a surface of said channel, said metal having been deposited on said channel surface from a plasma; and
an adhesive composition disposed in said channel,
said first structural component being bonded to said second structural component through said adhesive composition.

50. (Previously added) The method of claim 1, wherein said channel comprises a surface treatment disposed on said channel prior to exposing said channel surface to said plasma.

51. (Currently amended) A casing comprising a thermal barrier comprising:
a thermal barrier assembly comprising
a channel comprising a modified surface; and
a layer of metal bonded to a surface of said channel, said metal layer having been deposited onto said channel surface from a plasma; and
an adhesive composition bonded to the modified surface of said channel.

52. (Previously added) A window casing, door casing, or curtain wall casing comprising the casing of claim 51.